

REMARKS/ARGUMENTS

Claims 1-24 are pending in the present application. Claims 1, 11, 12, and 24 are amended. Claims 1 and 12 are independent claims. In view of the claim amendments and the following Remarks, the Examiner is respectfully requested to reconsider the outstanding claim rejections.

Rejection Under 35 U.S.C. § 112

Claim 11 stands rejected under 35 USC 112, 2nd paragraph, as being indefinite because "said lamp head" in line 3 has insufficient antecedent basis. Although Applicant points out that sufficient antecedent basis is provided in line 1 of the claim, Applicant has amended claim 11 so that the claim is more clearly directed toward "[a] lamp head in which the light assembly of claim 1 is located." Similar clarifying amendments have been made to claim 22. Applicant respectfully submits that such clarifying amendments do not change the scope of claim 11 or 22.

Rejection Under 35 U.S.C. § 103

Claims 1-4, 6, 7, 10, 11, and 23 stand rejected under 35 USC § 103(a) as being unpatentable over U.S. Patent No. 3,805,347 to Collins et al. (hereafter Collins). This rejection, insofar as it pertains to the presently pending claims, is respectfully traversed.

Collins discloses a type of light-emitting diode (LED) package that was produced before the development of injected-molded 5 mm packages that are currently in use. For instance, the "diode element" 11 referred to in Collins (also referred to as "diode" or "light emitting diode" in Collins) is the piece of semiconductor material that is now commonly referred to as the "die" of an LED package. Although the Examiner interprets this die 11 as the claimed light emitting diode (see page 3 of the Office Action), such interpretation is not consistent with the way in which those of ordinary skill in the art would now interpret the term "light emitting diode."

However, assuming for the sake of argument that the Examiner's interpretation is proper, Applicant respectfully submits that Collins fails to disclose the features of amended claims 1 and 12. Specifically, the die 11 in Collins is electrically connected to the circular metal header 12. See col. 2, lines 23-33. The Examiner interprets this header 12 as the

claimed thermally conductive base. Thus, Collins fails to disclose that the die 11 is electrically isolated from the base.

In fact, the operation of Collins's device depends on the fact that the header 12 electrically connects the die 11 to the electrical connection lead 13. Also, the lack of electrical isolation between the die 11 and header 12 in Collins is demonstrated by the fact that the other electrical connection lead 14 must be insulated from the header 12. See col. 2, lines 25-32.

Accordingly, Collins fails to teach or suggest an IR LED is electrically isolated from the thermally conductive base as required by independent claim 1.

Accordingly, Applicant respectfully submits that claim 1 is allowable at least for the reasons set forth above. Furthermore, it is respectfully submitted that claims 2-4, 6, 7, 10, 11, and 23 are allowable at least by virtue of their dependency on claim 1. Therefore, reconsideration and withdrawal of this rejection is respectfully requested.

Claims 8, 9, 12-16, 18-22 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Collins in view of U.S. Patent No. 4,267,559 to Johnson et al. (hereafter Johnson). This rejection is respectfully traversed.

Applicant respectfully submits that Johnson fails to remedy the deficiencies of Collins set forth above in connection with independent claim 1.

Johnson discloses that the "active device" 14 (i.e., die) is mounted directly on an electrically and thermally conductive heat coupler 12. Johnson further discloses that this heat coupler 12 is electrically connected to the header 10 in order to provide an electrically conductive path from the active device 14 to the lead 21. Accordingly, Johnson fails to disclose an LED that is electrically isolated from the thermally conductive base to which it is connected. See col. 3, lines 1-30. Thus, Applicant respectfully submits that claims 8 and 9 are allowable at least by virtue of their dependency on independent claim 1.

As to independent claim 12, the claimed invention recites a thermal electric cooler connected to the light-emitting diode. It is unclear what element in Johnson the Examiner relies upon to teach the claimed thermal electric cooler. It is respectfully submitted that those of ordinary skill in the art would recognize the term "thermal electric cooler" (also referred to as "thermoelectric cooler" or TEC) as an active electric device used for dissipating heat. Applicant respectfully submits that Johnson fails to disclose any such device. Instead, Johnson

discloses a passive heat coupler 12 that dissipates heat from the die 14 by providing a heat conductive path to the ambient atmosphere. See col. 3, lines 22-32.

Furthermore, claim 12 requires that the IR light-emitting diode be electrically isolated from the thermally conductive base. As discussed above, this feature is not taught by Collins. Johnson also fails to disclose this feature. Instead, Johnson discloses that the die 14 (interpreted by the Examiner as an IR LED) is provided with an electrically conductive path via the heat coupler 12 and the header 10 to the lead 21 (col. 3, lines 24-30; Fig. 1). Thus, the combination of Collins and Johnson fails to teach or suggest an IR light-emitting diode disposed at, but electrically isolated from, a thermally conductive base, as required by independent claim 12.

At least for the reasons set forth above, it is respectfully submitted that claim 12 is allowable over the combination of Collins and Johnson. Furthermore, Applicant submits that claims 13-22 and 24 are allowable at least by virtue of their dependency on claim 12.

Accordingly, reconsideration and withdrawal of the rejection of claims 8, 9, 12-16, 18-22 and 24 is respectfully requested.

Claim Amendments

Applicant respectfully submits that the amendments to independent claims 1 and 12 are supported in the specification at, e.g., paragraph 00022 of page 6. Specifically, Applicant submits that people of ordinary skill in the art would readily recognize that paragraph 00022 teaches the use of an IR light-emitting diode package 16 that is electrically isolated from the base 14 of the present invention.

Conclusion

Since the remaining patent cited by the Examiner has not been used to reject the claims, but to merely show the state of the art, no comment need be made with respect thereto.

In view of the above amendments and remarks, the Examiner is respectfully requested to reconsider the outstanding rejections and issue a Notice of Allowance in the present application.

Should the Examiner believe that any outstanding matters remain in the present application, the Examiner is respectfully requested to contact Jason W. Rhodes (Reg. No. 47,305) at the telephone number of the undersigned to discuss the present application in an effort to expedite prosecution.


If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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